

FOCUSED BEAM EMITTING GOLF BALL LIKE DEVICE FOR PUTTER AIM
TESTING AND TRAINING

Cross Reference To Related Applications: Application claims benefit of the filing date of Provisional Application # 60/430,467 filed on 12-03-02 and priority of that date.
U.S. Patent Application

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194A

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Background of the Invention

Numerous laser and other optical alignment devices have been proposed for putters and other golf clubs. Almost all such devices have one or more light sources, either in the clubhead, attached to the clubhead, generally above it and above ball height, or attached to the putter shaft or hosel near the clubhead. None of the above have gained wide popularity as putter training devices because they are cumbersome or inaccurate to set up and use, and present a substantially different optical picture than the golfer will see on the course during actual play. If a single centered laser is embedded into a putterface, it cannot be aimed or aligned at a target with a golf ball in front of it (ball blocks light) resulting in an unrealistic alignment picture. Numerous putterheads with two lasers (toe and heel) have been proposed allowing ball placement in between to overcome this problem. The two laser beams are offset left and right of the target requiring compensation for the actual target. These putters do not conform to the United States Golf Association (USGA) Rules of Golf and, therefore, the golfer must use another putter during actual play.

Other designs attach a single laser above the clubface high enough to shoot over a golf ball. This creates an optical picture substantially different than the user's usual on-course putter. Many others have proposed shaft or hosel mounted laser alignment devices with a single focused beam or numerous dots along the target line. These devices are difficult and time consuming to line up accurately. Set up is range sensitive. For example, if aligned properly for 20 feet, they must be realigned if practice is desired at 10 feet.

All of the above devices are extremely shaft angle sensitive. The beam hits the ground in front of the target or goes skyward above any target backstop if the user moves the puttershaft more than a few degrees from true vertical. Few, if any, of the devices have user remote activation of the light source. If the light is turned on before the user aims, he uses the light, not his own skills, to aim or align to the target.

Nothing is learned. None accommodate "blind testing" where the user does not learn of his aim test results until several aims are completed, and therefore can't cheat by using one aim test result to "adjust" or improve the next one.

Putterhead or shaft mounted lasers, and other light or mirror based putters, are illegal for actual play under USGA rules. You must therefore play actual rounds without the above devices creating a different aim picture. The shaft and putterhead detachable mounted lasers are difficult to mount and align making them impractical for comparing alternative putters (to see which ones you aim best) or testing alternative putting setups and stances.

Summary of the Invention

The present invention describes an inexpensive, easy to use laser or other focused beam based aim training or testing device which can be used with any putter (or other club) without time consuming or cumbersome setup and adjustment. It is either unattached or flexibly attached to the putterhead. It can be used with or without an optional recording backstop screen and can have a user activated remote switch, for either "blind testing" (where you don't see and, therefore, cannot adjust from your prior aim and "shot"), or full view testing. Unlike others, it is not shaft angle or loft sensitive. The device presents a realistic visual picture of any putter with a ball centered in front of it. Golfers can easily use the device themselves in a golf shop or home to find the putter they can consistently "aim" the best or to find the stance and setup putting their optical aim on the target line.

Discussion of the Prior Art

There are numerous examples of single or dual lasers or lights embedded into putterheads including 6,458,038; 5,980,393; 5,810,674; 5,593,354; 5,482,283; 5,169,150; 5,165,691; and possibly others. These putters are non-conforming to the USGA Rules of Golf and, therefore, cannot be used in normal play.

requiring a different putter for play vs. practice. The single central embedded clubhead laser or light can't be used with a ball in front creating an unnatural unrealistic optical picture. The twin lasers are offset from the ball target line requiring compensation. They can't be used to test the aim or alignment of any other putters. They are extremely loft and lie sensitive where a slight shifting of the user's hand position shoots the beam in wayward directions, hitting the floor before the target or shooting over it. They lack remote user activation buttons which a user can engage only after one feels his aim and alignment are correct. If the laser remains on during aiming, the user is tempted to "cheat" using the laser beam not the putterhead to aim. No user vision shielded backstop screens are described which are necessary for "blind tests."

Numerous other examples describe lasers, mirrors, or focused beams permanently or removably attached to the top of putterheads. These allow more realistic use of a golf ball in front of the putterface and do not require aim compensation like twin laser putterheads, but the laser mount, or mirror, or light source presents an unrealistic optical picture for aiming vs. putters used in actual play. Like all devices rigidly affixed to putterheads or shafts, they are loft and lie sensitive, and they lack user remote activation buttons allowing users to "cheat" by using the beam to aim rather than learn their true aiming tendencies. They also lack user shielded backstop screens for "blind testing." Those with removable lasers can be USGA legal, but realignment of the lasers once removed is time consuming, inaccurate and cumbersome. Examples of putterhead attached devices include 6,383,087; 6,371,864 B1; 6,095,930; 5,725,439; 5,709,609; 5,611,739; 5,464,221; 5,388,832; 5,330,188; 5,213,331; and 5,193,812.

Perhaps the most popular type of laser putter systems involve putter shaft attached devices. Some are attached low, at or near the club Hosel and throw a single beam, either offset 4" to 12" from the target line, or aimed from a different angle making tedious readjustment and calibration necessary every time

the target to putter distance is changed. Other higher shaft mounts project multi-dots along the putterhead target tine (again after tedious adjustment). Still others bounce the shaft mounted lasers off 45 degree angle oriented mirrors mounted on top of the putterhead destroying any realistic looking siting pictures. All of the above are loft and lie sensitive, lack user shielded backstop screens, and lack user operated remote activation (except 5,472,204). Shaft mount examples include 6,238,298 B1, 6,149,537, 5,725,440, 5,494,290 and 5,207,429.

Prior art discloses only two putter alignment devices which lie on the ground unattached to a putter like the present invention. 5,452,897 describes a laser device which is laid on the ground (by user or assistant) against the putterface after the user has attained his aim and removed the golf ball. This is cumbersome and time consuming with a very high likelihood that the aim will be lost before the procedure is done, especially if the user attempts this unassisted. Both the device and its use differ substantially from the subject invention. The other 4,997,189 to Pelz, requires accurate mounting of a mirror on the putter toe at precisely a 90 degree angle from the face and exact alignment of a light source/sensor box (with top display) parallel to the putter-target line. If the user moves the putter toward or away from the sensor box, the alignment is off. Neither device describes user remote activation buttons or user shielded recordable backstop screens. 6,458,038 B1 does describe a photo-sensitive screen with remote display, but uses a single non-user shielded backstop and putterhead embedded light source with all the limitations of same previously described.

Brief Description of the Drawings

Fig. 1 is a plan view of the present invention in intimate contact with a typical putterhead. The focused beam emitting device, a small laser in this embodiment, is embedded in a sphere having the size and appearance of a golf ball, which is attached to a base sitting stably on the ground. Two alternative focused beam activation means are shown.

Fig. 2 is a sectional elevation view of the same embodiment of present invention again in intimate contact with a putterhead. An attitude adjustment means for the focused beam is shown as are two activation means.

Fig. 3 is an elevation view of the present invention showing the typical location of a golfer's eye above a typical putter in conjunction with a user blind recordable backstop screen of the present invention placed behind the target aim point (typically the center of a golf cup or white floor disc of cup size). The focused beam impacts the screen to show or record the golfer's actual aim vs. his intended aim (at the center of the cup or aim target).

Fig. 4 is a sectional elevation of an alternative embodiment of the present invention where the laser ball device is preferably flexibly attached with pressure sensitive tape or the like to the sole of a typical putter such that the focused beam is normal to the putterface when viewed from above. Attitude adjustment and activation means are also shown.

Description of Preferred Embodiments

The present invention utilizes a focused beam device of visible or non-visible light or other energy to determine or improve a golfer's ability to aim or align any putter, or other club, accurately at a specific target. Because the device has the size, shape, and appearance of a golf ball, when viewed by a golfer from above, and can be used with any putter, it has the identical optical appearance of an actual ball being addressed and aimed by a golfer with a putter (or other club).

The present invention also incorporates one or more remote user activated beam activation means and an optional user blind recordable backstop screen placed behind the intended aim target (typically the center of a golf cup or similarly sized flat white disc on the ground). This allows the user to aim, shoot, and record several alignments without using the visible focused beam to improve aim (i.e., cheat), again exactly simulating actual

playing conditions where such visible aiming beams are not permitted under the Rules of Golf.

The present invention is, therefore, useful in determining or improving a golfer's aiming accuracy with a specific putter or club (i.e., the relative dispersion of multiple shots at a target), as well as, average alignment error (i.e., the location of the shot grouping center relative to the intended target point). Aiming accuracy (shot dispersion) is primarily influenced by the optical appearance of specific putterheads when viewed (aimed) by a golfer from above with a ball in place. At a range of 20 feet, a typical golfer might have an aim dispersion of 12 inches with one putter and less than half that with another better optically suited to him. The same golfer might have an alignment error of 3° left with one putter, stance or setup and 0° with another putter, stance or setup.

The subject invention, therefore, allows a golfer to select the best putter, stance, and setup to optimize both aim accuracy and alignment. It also allows improvement through practice aiming not possible by actually stroking a ball which introduces swing errors and green errors (breaking slopes and grass grain moving a ball off line). The subject invention represents a major improvement over the current art of golf laser or light aiming devices because:

1. It is the only device presenting an optically realistic picture of the user's actual playing putter (unencumbered by any shaft or clubhead mounted light sources) addressing a golf ball.
2. Since the focused beam is in the ball which stays flat on the ground and not rigidly attached to the club or shaft, it is not loft or lie sensitive, with the beam hitting the ground in front of the clubhead if the player moves his hands forward, and skyward if he moves his hands rearward.

3. The device can be used with all USGA legal clubs (which cannot have focused light sources) without cumbersome, time consuming, inaccurate light source or mirror attachment to the clubhead or clubshaft and adjustment.
4. It can be used with its optional backstop screen to blind test aim a putter such that the user cannot "cheat" by using the visible light beam from one aim test to improve the next.
5. It incorporates users activatable beam activation means (wireless or wired floor, grip mounted or remote button) keeping the beam off until the user feels he has achieved correct aim.

The preferred embodiments are more fully described in the drawings. Figure 1 is a plan or overhead view of a typical putter 10 with shaft 11 and face 12 in sliding contact with the rear face 9 of the subject invention, which contains a base 5 preferably either of transparent or translucent plastic or painted green to take it out of optical view. The base is of sufficient size, weight, and bottom flatness to sit firmly on a putting green, carpet, or smooth floor without significant tipping or canting fore and aft or side to side. A focus beam holder 1 is attached to, or an integral part of, the base 5 and has the appearance of a golf ball when viewed from above. A focused beam emitting source 2, such as a small laser, is embedded into the holder 1 facing forward toward the target 28 with aim point 26 and at a 90 degree angle from the base rear face 9 in contact with a putter 10 (or other club). The source emits a focused energy beam 3 such as visible or non-visible (IR or UV) light or an electro-magnetic beam (RF). The beam source 2 contains an energy source 4 such as batteries or alternatively such energy source 4 can be remote from the beam source 2 such as near the floor or club shaft activation means 7 or push button or pressure switch connected by wires 6. The energy source 4 can

also be in the holder 1 or base 5. Alternative activation means include a pressure contact switch 8 on the rear face of the base 5 which activates when contacted by the face 12 of a club 10 or a wireless remote activation switch (not shown).

Figure 2 is a sectional elevation of the embodiment shown and described in Figure 1. The base 5 has an optional weighing means 14 to provide stability against unintended movements and an adjustment screw or other means 15 to adjust the angle or attitude of the beam 3 relative to the ground or floor. Also shown is an elastomer bottom surface 16 to prevent slippage on smooth surfaces with multiple small feet or spikes 17 to hold position in grass or carpet pile. An optional mating groove or circular keyway 18 between the beam holder 1 and base or base weight (5 or 14) oriented on the target line allows attitude adjustment of the beam 3 without disturbing its 90 degree orientation with the base rear putter contacting surface 9.

Figure 3 shows a golfer's eye above a putter shaft 11 with optional shaft or grip mounted beam activation means 27 or floor button 7 with the beam 3 shooting over the target point (the center 26 of a golf hole 28) before passing through a transparent or translucent backstop screen 22 and contacting either removable manual marked or light sensitive recording paper 23, or a photo, or other energy sensitive electronic sensor screen (also 23). If the electronic sensor screen is used, it can be wire or wirelessly connected to a display screen 27 showing the dispersion and alignment of one or more aim attempts 25 vs. the intended target 26. A top shield 20 can be used to prevent the golfer from seeing above line 29, the light beam location of his prior aim attempts and using it to "adjust" subsequent attempts. "Blind" putter aim tests and training are therefore possible. The top shield 20 can be adjusted up or down via adjustable legs 21. The user's eye to target line is shown as 19.

Figure 4 is a sectional elevation of an alternative embodiment of the present invention which can use the same or smaller base 30, with rear face 31, under the golf ball shaped holder 1 with beam source 2 and optional attitude adjustment

means 15 and 18 as previously described. A plastic sheet, or film, or tape strip 32 attaches the base 5 or 30 of Figure 2 or Figure 4, respectively, to the bottom of a putter 10 or other club via pressure sensitive adhesive 34, or similar means, such that the rear of the base (9 in Fig. 2 or 37 in Fig. 4) is in contact with the putterface 12. Part 33, or all of the sheet, or film, or tape strip 32 can act as a flexible hinge such that the putter's loft can be changed by the user (by moving this hands fore or aft relative the putterhead) without changing the attitude of the beam 3 which could otherwise either strike the ground in front of the target (28 in Fig. 3) or shoot over the backstop screen (22 and 23 in Fig. 3). Also shown is an alternative activation switch 35 which can be activated by pressing the putter or club downward.

In another preferred embodiment (not shown), a white or light colored circle or disc, approximately the diameter of a golf ball and located in a substantially horizontal plane on the device, replaces the golf ball shaped device of the present invention.

Other embodiments incorporating the principles of the invention described herein are also a part of the present invention.